

--ABSTRACT OF THE DISCLOSURE

A digital transmission system and method which combines advantages of OFDD with Frequency Divided Duplex (FDD), to thereby enable a reach of a vdsl transmission system to be extended. The system and method require utilizing an extra cyclic prefix and, for longer lines, frequencies above the FDD band are not used. As a result, time synchronization is performed between all transmitters in the ONUs and the NTs, a timing advance is calculated from a line length, and different sub-carriers are used in up-stream and down-stream directions.--